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The Military Strength of the Axis in Europe

The present estimates of the military strength of the Axis in Europe differ greatly in order of magnitude, perhaps because until now our operational contacts with the enemy in Europe have been slight. There is, however, one set of data which can serve as a certain check on all partial estimates of Germany's war power: the figures for the German population and its employment in 1939.

The complex of estimates of withdrawals of men for the army, increments to the labor force of all kinds, changes in armaments output, and changes in the level of civilian consumption, must all be simultaneously consistent with the 1939 employment figures. If these estimates are not simultaneously consistent, some of them must be wrong.

Fortunately, the detailed results of the Census of Greater Germany for May 1939 are available to us. From these figures it is possible to estimate with some confidence the maximum amount of labor which could have been displaced for the benefit of the armed forces and for the armament industries.

The first step in the calculation will be the gross withdrawals for the armed forces. Estimates of these withdrawals have been made in a study by the Economics Division parallel to this one, and the detailed argument will not be repeated here. Our estimate of the present size of the German armed forces (including para-military formations) is about 10 millions. Our estimate of German permanent casualties -- killed, prisoners, missing, and disabled -- comes to something over 1.5 millions for all campaigns up to the present. However, there were already about 2.2 million men in the army in May 1939. Therefore the gross withdrawal of men from employment for the Army since 1939 has been as follows:

Increase in armed forces	7.8
Permanent casualties	1.5
Gross withdrawals from labor force	9.3

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On the increment side are:

New foreign workers		1.6 million
War prisoners		1.6 million
Internal recruits		
	Male	.3
	Female	.5
		4.0 million

The argument for these figures has been presented in a supporting memorandum to Monograph No. 3 of the Coordinator's Office, and it will not be repeated in detail here. It should be noted, however, that there were already about 500,000 foreign workers in Germany in May 1939; these were included in the 1939 employment figures, so they have not been added. Total foreign workers are estimated at 2.1 millions.

The figure for new women workers will seem low to many persons. The argument for a low figure will be found in the memorandum mentioned above.

We have, therefore, gross withdrawals from the labor force of 9.3 millions, and gross increments of 4.0 millions, leaving a net deficit of 5.3 millions.

The next step is the appraisal of the possibilities of displacement of labor to meet this deficit, and to provide such added labor force as could be provided for the armaments industry. In making this appraisal we have set up the complete figures for the occupational distribution of the German population in 1939, because it is easier to estimate the possibilities for the specialized groups than for the general divisions.

The Basis for the Estimates of Displacement.

In the case of Agriculture, it is estimated that no net numerical contribution can have been made; on the contrary, total employment in Agriculture has gone up somewhat. The British Ministry of Economic Warfare has estimated the numerical increase at about 11%, giving a total of about 12 millions now employed in the general division. Our estimate of the increase is somewhat lower, coming to between 9% and 10%, or about 1,000,000 for the whole class.

The reason for the increase is clear enough. The withdrawal of some millions of the most capable men has meant a severe qualitative decline in the agricultural labor force. To counteract this decline, the government

has had to send a large number of foreign workers, women, and children into Agriculture. The recent German ration reduction shows that the German government considers that the protection of Germany's food position requires severe action on the part of the government. The maintenance of between 11 and 12 million workers in agriculture in the face of acute labor shortages elsewhere is a policy parallel to that which led to the ration reduction.

In the division of Government Service and Personal Services, we concluded that no great displacement was possible. Government service (which includes the professional part of the army and the officers of the NSDAP) can certainly not have been reduced over all, in spite of any reductions in particular corners. We are inclined to think that entertainment will have been maintained also. It is necessary now more than ever before; film imports are cut off; it is a cheap way of providing real income for the consumer and it is an easy way of extinguishing purchasing power.

We think that medical services have probably increased, on account of the use of civilian hospitals and personnel to care for a part of the military casualties.

The other items in this division call for no special comment.

The division of Household Service consisting almost entirely of women is difficult to appraise. Without being especially attached to the figure, we have assumed that 70% of this division will have been taken for other work.

Some of the items under the division of Commerce and Transport need explanation. The figure for food trade is only slightly reduced; we think that, as the retail food stores have become an important part of the State apparatus of distribution control, they will not have been greatly reduced.

The Reichsbahn have probably been increased, if anything, on account of the extension of the railway network in the East; we have assumed no change however.

The relatively slight decline in the hotel industry is based on the idea (1) that many of the hotels have probably been taken over for government purposes, and (2) there is undoubtedly a large amount of movement on account of war operations and shifts of industries which will largely counteract the decline in tourist trade.

In the division of Industry and Handwork, most of the displacements call for no special comment. The bakery industry has been cut in half, on account of its notorious amount of waste effort. In the case of the Construction and Stone and Earth industries, it is assumed that virtually all construction for private needs has ceased, but that the minimum requirements for the armaments industry, fortifications, and necessary repairs would require about 30% of 1939 activity.

In estimating the possible reduction in personnel, it has been borne in mind that the further isolation of the Germany economy since 1939 has made necessary the use of poorer materials and less efficient processes, so that the reduction in personnel has probably not been so great as the reduction in output.

The sum of all these displacements is 6,580,000 against which to set a figure of net withdrawals on other account of 5.3 millions.

The residue of 1,280,000 is about the maximum number of workers that can have been added to the metals and chemical industries since May 1939. This would allow for a net numerical increase, therefore, of between 23 and 24%, to about 6,709,000 for the total of the two groups.

Even the roughest calculation moreover would have to take account of the loss of efficiency resulting from the very large transfers which we have calculated above.

And it should be particularly noted that the million and a quarter which have been added to metals and chemicals is a net addition; the gross transaction took the form of the subtraction of several hundred thousand of the best men for the army, partly compensated for by an equal numerical addition of inferior workers, plus the addition we have calculated, also by definition inexperienced and probably on the whole poorly adapted to the work. The overall average output per man in the metals and chemicals industries may easily have declined by 20%. When account is taken of this factor, it seems probable that the effective labor force in metals and chemicals is no larger than it was in May 1939. If any branch of armaments has increased its output since then, it must have been at the expense of some branch of the metals or chemicals industries themselves.

But on consulting the breakdown of these industries, it is not easy to see what branch could have been squeezed without restricting the output of some type of armament or of materials equally necessary to Germany's war power.

Chemicals employed about half a million; whatever part of the industry was working on civilian production in 1939 must still be indispensable because of the great need for synthetics of all kinds and because of the requirements of German agriculture.

In the metals industries, iron and metal production have probably required about the same labor force, i.e., 645,000. Iron, steel, and metalware manufacture employed about 1,745,000; probably they were working largely on armaments by 1939. But say that 30% represented manufacture for civilian use and for exports no longer produced. That would give about 525,000 to add to the balance of the metal-chemical group.

The other branches of the armaments industry were probably pretty well covered by the Chemicals industry (497,000), the Electro-technical industry (692,000), the Fine-mechanical and Optical industry (202,637) and the Machine, Boiler, and Vehicle manufacturing industry (2,082,000), totaling 3,473,000. The addition of 525,000 workers to these would represent an overall increase in the industries at the heart of armaments production of around 15%.

GAINFULLY ACTIVE PERSONS, GREATER GERMANY
(including Austria and the Sudetenland)

	May 1939 Census	Total	Estimated % Change to May 1942	Estimated Numbers May 1942	Total	Displacement
I Agriculture and Forestry						
Agriculture, Stockbreeding, and Gardening						
Agriculture and Stockbreeding	10,341,537		+10	11,375,691		
Gardening	274,739		0	274,739		
		10,616,276			11,650,430	-1,034,154
Forestry, Hunting, and Fishing						
Forestry and Hunting	203,476		0	203,476		
Deep-sea and coastal fisheries	20,402		-50		10,201	
Inland fisheries and fish breeding	7,362		0	7,362		
		231,240			221,039	10,201
Total		10,847,516			11,871,469	-1,023,953
II Commerce and Transport						
Commodity Trade						
Import and Export Trade	42,370		-50	21,185		
Foodstuffs	999,196		-10	899,276		
Tobacco	83,059		-20	66,447		
Textiles	498,397		-25	373,798		
Shoes	59,495		-25	44,621		
Leather	17,815		-25	13,361		

	May 1939 Census	Total	Estimated % Change to May 1942	Estimated Numbers May 1942	Total	Displacement
Iron & Metal	48,791		-40	29,275		
Iron & Metalware	165,747		-40	99,448		
Automobile Trucks, etc.	83,244		-40	49,946		
Machines, etc.	49,641		-40	29,784		
Building Materials & Wood	77,428		-70	23,228		
Furniture, Musical Instruments, etc.	76,513		-90	7,651		
Chemicals, etc.	164,344		-60	65,738		
Precious Metalwares, watches, etc.	44,821		-60	17,928		
Books, Newspapers	71,313		-10	64,182		
Paper and Leather Goods	98,420		-40	59,052		
Horticultural & Zoological	19,893		-60	7,957		
Coal and Fuel	102,553		-20	82,042		
Junk	33,618		0	33,618		
Trade in Livestock	32,068		-25	24,051		
Miscellaneous	304,368		-40	182,621		
		3,073,094			2,195,209	877,885
Publishing Houses, Soliciting, and Real Estate						
Publishing	133,700		-50	66,850		
Economic Soliciting and Travel Bureaus	22,485		-80	4,497		
Real Estate, Lending, and Auctioning	137,694		-80	27,539		
		293,879			98,886	194,993
Money, Banking, and Insurance						
Money, Banking & Exchange	234,042		-50	117,021		
Insurance, except Soc. Ins.	153,641		-25	115,231		
Social Insurance	72,374		-10	65,137		
		460,057			297,389	162,668

	May 1939 Census	Total	Estimated % Change to May 1942	Estimated Numbers May 1942	Total	Displacement
Transportation except for Post Office and Government Railroads						
Railroads and Airplanes	167,418		-25	125,563		
Trucks and Buses	213,802		0	213,802		
Ocean and Coastal Shipping	68,471		-40	41,083		
Inland Waterways	131,326		0	131,326		
Forwarding and Warehousing	118,345		-10	106,511		
		699,362			618,285	81,077
Hotels	869,021		-10	782,119		
		869,021			782,119	86,902
Total		5,395,413			3,991,888	1,403,525
III **Government Service and Personal Services**						
State Post Office and Railroads						
German Post Office	466,807		0	466,807		
German Railroads	988,663		0	988,663		
		1,455,470			1,455,470	

	May 1939 Census	Total	Estimated % Change to May 1942	Estimated Numbers May 1942	Total	Displacement
Administration, NSDAP Armed Forces, Education, & Religion						
Federal, Provincial, and local Administration	1,039,328		0	1,039,328		
Public Labor & Industrial Management	169,931		0	169,931		
Armed Forces	851,553		0	851,553		
Labor Service	71,219		0	71,219		
School & Educational Establishments	429,983		-50	214,992		
Free Artistic and Other Vocational	25,285		-100	———		
Church	216,643		-30	151,650		
Legal and Advisory	123,861		-50	61,930		
		2,927,803			2,560,603	367,200
Health and Recreation						
Social Welfare	167,812		0	167,812		
Medical Care	452,714		+10	497,985		
Apothecaries	31,886		0	31,886		
Sports	14,536		-10	13,082		
Bathing & Swimming	13,439		0	13,439		
Street Cleaning	41,197		0	41,197		
Undertakers	19,277		0	19,277		
Veterinarians	16,881		0	16,881		
		757,742			801,559	- 43,817

	May 1939 Census	Total	Estimated % Change to May 1942	Estimated Numbers May 1942	Total	Displacement
Hairdressers	228,713		-60	91,485		
		228,713			91,485	137,228
Theatre, Music, Movies						
Theatre, Music, and Radios	96,824		0	96,824		
Movie Houses and Movie Industry	38,398		0	38,398		
Theatre Management	18,657		0	18,657		
		153,879			153,879	
Total		5,523,607			5,062,996	460,611
IV Household Services						
Domestic Service						
Personal Service (Servants living in)	1,024,848		-70	307,454		
Personal Service (Servants living out)	496,870		-70	149,061		
		1,521,728			456,515	1,065,213
Total		1,521,728			456,515	1,065,213
V Industry and Handwork (other than Metals and Chemicals)						
Mining						
Hard Coal, etc.	532,966		0	532,966		
Brown Coal, etc.	142,922		0	142,922		
Iron-ore	40,654		0	40,654		

	May 1939 Census	Total	Estimated % Change to May 1942	Estimated Numbers May 1942	Total	Displacement
Metal-ore	28,800		0	28,800		
Salts mining	29,927		0	29,927		
Production of Peat, Petroleum, etc.	20,888		0	20,888		
		796,157			796,157	0
Stone and Earth Industry						
Production of Natural Stone	235,294		-70	70,588		
Lime, Gypsum, and Cement Industry	64,083		0	64,083		
Brick Industry	192,627		-70	57,788		
Ceramic Industry	157,352		-70	47,206		
Glass Industry	129,727		-70	38,918		
		779,083			278,583	500,500
Textile Industry						
Processing of Artificial Fibers from Cellulose	45,657		+100	91,314		
Wool, Cotton, etc.	850,371		-35	552,741		
Yard Goods	369,867		-25	277,400		
Sail-Making, etc.	129,630		-60	51,852		
		1,395,525			973,307	422,218
Paper Manufacture & Paper Products						
Paper Mfg. & Processing	173,880		-10	156,492		
Carton Preparation, Book Binding	135,854		0	135,854		
		309,734			292,346	17,388

	May 1939 Census	Total	Estimated % Change to May 1942	Estimated Numbers May 1942	Total	Displacement
Printing & Duplication						
Printing, etc.	252,755		-20	202,204		
Photography	24,157		-50	12,079		
		276,912			214,283	62,629
Leather & Linoleum Industry						
Leather & Linoleum Mfg.	68,022		-50	34,011		
Leather-goods Mfg.	110,796		-25	83,097		
		178,818			117,108	61,710
Rubber & Asbestos Working Industry	88,979		-35	57,836		
		88,979			57,836	
Wood and Wood Products						
Sawmill & Veneer Work	189,027		-60	75,611		
Furniture Work	516,650		-80	103,330		
Wheelwrights	56,655		0	56,655		
Cooperage	123,908		-50	61,954		
Manufacture of Goods from Sawed Lumber	14,109		-80	2,822		
Box and Basket Mfg.	31,660		0	31,660		
Brush Manufacture, etc.	28,763		-80	5,753		
		960,772			622,987	
Musical Instruments and Toys						
Musical Instrument Production	32,929		- 90	3,293		
Toy Production	28,449		-90	2,845		
		61,378			6,138	55,240

	May 1939 Census	Total	Estimated % Change to May 1942	Estimated Numbers May 1942	Total	Dis-placement
Foodstuffs Industry						
Milling	85,889		-10	77,300		
Bakeries	521,835		-50	260,417		
Sugar Industry	37,603		0	37,603		
Cocoa, Chocolate, and Confectionery	66,297		0	66,297		
Butcher Shops & Slaughter Houses	380,932		-15	323,792		
Fish Industry	18,693		-50	9,347		
Dairy	74,400		-15	63,240		
Processing of Vegetable Oil & Fat	27,062		-30	18,943		
Fruit and Vegetable Preparation Industry	24,851		-40	14,911		
Foodstuffs and Fodder Industry	53,753		0	53,753		
Breweries	120,923		-35	78,600		
Distilleries	27,264		0	27,264		
Manufacture of Wine	35,397		0	35,397		
Manufacture of Tobacco Products	180,097		-20	144,078		
		1,654,996			1,210,942	444,054
Clothing Industry						
Tailoring, etc.	911,553		-35	592,509		
Furs	22,692		0	22,692		
Cap, Hat & Millinery Trade	81,467		-50	40,734		
Manufacture of Feathers, Buttons and Hats	66,237		-80	13,247		
Manufacture of Leather Gloves	14,894		0	14,894		
Shoemaking	334,912		-20	267,930		
Cleaning of Textile Products	129,948		-50	64,974		
		1,561,703			1,016,980	544,723

	May 1939 Census	Total	Estimated % Change to May 1942	Estimated Numbers May 1942	Total	Displacement
Construction						
Architecture, Building, Engineering, etc.	153,781		-70	46,134		
Building and Auxillary Works	2,549,190		-70	764,757		
Chimney-Sweeping	29,018		0	29,018		
		2,731,989			839,909	1,892,080
Water, Gas, and Electric Production and Maintenance	237,884		0	237,884		
		237,884			237,884	0
Miscellaneous Occupation	40,558		-50	20,279		
		40,558			20,279	20,279
Total	11,074,488	11,074,488			6,399,537	4,674,951
VI						
Metals and Chemicals						
Iron and Metal Production						
Iron Making Industry	452,810					
Iron & Steel Foundries	132,759					
Metal Production	149,061					
		734,630				
Iron, Steel & Metalware Manufacturing						
Iron, Steel and Metalware Industry	786,078					
Blacksmith	126,856					
Locksmith	142,188					
Tinsmith	129,816					
		1,184,938				

	May 1939 Census	Total	% Estimated Change to May 1942	Estimated Numbers May 1942	Total	Displacement
Machine, Boiler and Vehicle Manufacture						
Machinery, etc.	1,252,116					
Steel & Iron Mfg.	60,403					
Ship-building	117,466					
Construction of land vehicles & aircraft	652,823					
		2,082,808				
Electro-technical Industry	692,086					
		692,086				
Fine-Mechanical and Optical Industry	202,637					
		202,637				
Chemical Industry	532,454					
		532,454				
Total		5,429,553		6,709,000		-1,280,000
GRAND TOTAL		39,792,305		34,491,405		5,300,347